CLAIMS

We claim:

1. An isolated compound comprising an indirubin molecule substituted with a halogen at position C6 of the indirubin molecule.

2. The isolated compound of claim 1, wherein the compound inhibits GSK-3 activity with an IC_{50} value of less than 0.1 μM using GS-1 peptide as a substrate.

3. A pharmaceutically acceptable salt or solvate of the isolated compound of claim 1.

4. The isolated compound of claim 1, wherein the compound is selected from the group consisting of 6-bromoindirubin (**5a**), 6,6'-dibromoindirubin (**12b**), 6-bromoindirubin-3'-oxime ("**BIO**") (**7a**), 6,6'-dibromoindirubin-3'-oxime (**13b**), 6-bromoindirubin-3'-methoxime (**9a**), 6-bromo-5-methylindirubin (**5f**) and 6-bromoindirubin-3'-acetoxime (**8a**), and pharmaceutically acceptable salts thereof.

5. The isolated compound of claim 1, wherein the compound is selected from the group consisting of 6-bromo-5-aminoindirubin (**27**) and 6-bromo-5-amino-3'-oxime-indirubin (**28**) and pharmaceutically acceptable salts thereof.

6. A compound selected from the group of 6-bromoindirubin (**5a**), 6,6'-dibromoindirubin (**12b**), 6-bromoindirubin-3'-oxime ("**BIO**") (**7a**), 6,6'-dibromoindirubin-3'-oxime (**13b**), 6-bromoindirubin-3'-methoxime (**9a**), 6-bromo-5-methylindirubin (**5f**), 6-bromo-5-aminoindirubin (**27**), 6-bromo-5-amino-3'-oxime-indirubin (**28**), 6-bromoindirubin-3'-acetoxime (**8a**), 5-amino-indirubin (**23**), 5-amino-3'-oxime-indirubin (**24**) and pharmaceutically acceptable salts thereof.

7. An inhibitor of GSK-3 activity, wherein the inhibitor comprises an indirubin molecule with a halogen atom covalently attached to carbon number 6, and the inhibitor inhibits GSK-3 activity with an IC_{50} below 5 μM in an activity assay using GS-1 peptide as a substrate.

8. The inhibitor of claim 7, wherein the halogen atom is bromine.

9. A pharmaceutical composition comprising 6-bromoindirubin, or pharmaceutically acceptable salt thereof, and a pharmaceutically acceptable vehicle.

10. A method of inhibiting GSK-3 activity comprising contacting GSK-3 with the inhibitor of claim 7.

11. The method of claim 10, wherein the GSK-3 activity is inhibited *in vitro*.

12. The method of claim 10, wherein the GSK-3 activity is inhibited in a cell.

13. The method of claim 10, wherein the inhibitor is selected from group of compounds consisting of 6-bromoindirubin (**5a**), 6,6'-dibromoindirubin (**12b**), 6-bromoindirubin-3'-oxime (**7a**), 6,6'-dibromoindirubin-3'-oxime (**13b**), 6-bromoindirubin-3'-methoxime (**9a**), 6-bromoindirubin-3'-acetoxime (**8a**), 6-iodoindirubin (**5c**), 6-iodoindirubin-3'-oxime (**7c**) and 6-iodoindirubin-3'-acetoxime (**8c**), and pharmaceutically acceptable salts thereof.

14. The method of claim 10, wherein the inhibitor is selected from group of compounds consisting of 6-bromo-5-aminoindirubin (**27**), 6-bromo-5-amino-3'-oxime-indirubin (**28**), and pharmaceutically acceptable salts thereof.

15. A method for the isolation of 6-bromoindirubin from a natural source comprising the steps described in Example 6.1.2.

16. A method for preventing, treating or ameliorating type 2 diabetes or Alzheimer's disease in a mammal, comprising administering to the mammal an effective disease-treating or condition-treating amount of a pharmaceutical composition of indirubin-type compound consisting of 6-bromoindirubin (**5a**) or a 6-bromoindirubin derivative or analogue.